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2431				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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**Office Action Summary****Application No.**

09/945,123

**Applicant(s)**

LEYDIER ET AL.

**Examiner**

SYED ZIA

**Art Unit**

2431

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7,10-13,16-31,34,39-48 and 50-55 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

- 6) ☒ Claim(s) 1,3-7,10-13,16-31,34,39-48 and 50-55 is/are rejected.

- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

This office action is in response to remarks filed on January 7, 2011. Presently claims 1-7, 10-13, 16-35, 37, and 40-49 are pending.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-7, 10-13, 16-31, 34, 39-48, and 50-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Tamir et al. (U. S. Publication No.: US 2004/0220807).

1. Regarding Claim 1, Tamir teach and describe an integrated circuit card [100], comprising: an integrated circuit having a biometric voice sensor integrated [109, 108] into a portion of the integrated circuit [100] wherein the voice sensor is configured to detect the speech

of a user and to produce a signal responsive to the speech of the user [103 perform DSP] [paragraph 0093];

a memory for storing information [101] indicative of at least one user's voice characteristics [paragraph 0095 line 1 to 5]; and

a voice processing circuit integrated [103 perform DSP] into a portion of the integrated circuit [100], wherein the voice processing circuit is configured to receive the signal from the biometric voice sensor [transducers 108, 109], to process the signal to detect characteristics of the at least one user's voice and to use a voice recognition technique to compare the detected voice characteristics with information stored in the memory [Verification process 206, paragraph 0101 line 1 to 5], and to perform at least one task selected from the set including authenticating the user, identifying the user, executing a voice-transmitted command, encrypting a user's voice, and speech recognition [verify user identity and authenticate, paragraph 0098 to paragraph 0103].

2. Regarding Claim 31, Tamir teach and describe a method of processing voice waves with an integrated circuit card [100], comprising:

generating an electrical signal with a voice sensor of the integrated circuit card [100] responsive to speech spoken into the voice sensor [transducers 108, 109];

analyzing the electrical signal with a signal processing circuit of the integrated circuit card [100] [103 perform DSP] to detect characteristics of a user's voice; and

using a voice recognition technique to compare the detected voice characteristics with information stored in a memory of the integrated circuit card and indicative of the user's voice memory [Verification process 206, paragraph 0101 line 1 to 5], and to perform an action selected

from the set including authenticating the user, identifying the user, executing a voice-transmitted command, encrypting a user's voice, and speech recognition [verify user identity and authenticate, paragraph 0098 to paragraph 0103].

3. Regarding Claim 54, Tamir teach and describe a portable device [100], comprising: an integrated circuit [100] having a biometric voice sensor integrated [transducers 108, 109], into a portion of the integrated circuit, the biometric voice sensor comprising a pressure sensor including a membrane that responds to a voice pressure wave [transducer 108, 109 , acoustic-to-electric transducers, converts sound (air pressure) to electric signals] and wherein the voice sensor is configured to detect the speech of a user and to produce a signal responsive to the speech of the user [103 perform DSP] [paragraph 0093]; and a voice processing circuit integrated into a portion of the integrated circuit [100], wherein the biometric voice processing circuit is configured to receive the signal from the biometric voice sensor and to process the signal to extract the voice characteristics representative of the user [verify user identity and authenticate, paragraph 0098 to paragraph 0103].

2. Claims 3-7, 10-13, 27-30, 34, 43-46, 50-51 and 55 are rejected applied as above rejecting Claims 1, 31 and 54. Furthermore, Tamir teach and describe a

As per Claim 3, further comprising means for establishing a data link [such as, over phone] to download data from which the stored information is derived [paragraph 0099 line 1-10].

As per Claim 4, the integrated circuit card uses the stored information to authenticate the user [paragraph 0099].

As per Claim 5, the information is indicative of the voice characteristics of multiple users and wherein the integrated circuit card is configured to authenticate each of the multiple users [comparing the recorded voice pattern with the voice patterns stored in the database of authorized users, and if a match is detected enabling access to the computerized system, paragraph 0079, and 0125 and 0044].

As per Claim 6, the integrated circuit card contains user specific profile information for each of the multiple users that enables user specific device functionality. [paragraph 0125]

As per Claim 7, the integrated circuit is configured to authenticate a user of the integrated circuit card by comparing the characteristics of the voice sensor signal to information stored in memory indicative of a predetermined password [verification process 206, paragraph 0101 line 1 to 14]

As per Claim 10, the integrated circuit is configured to execute a voice-transmitted command from the at least one user by comparing the characteristics of the voice sensor signal to information stored in the memory [101] indicative of the voice characteristics of the at least one user speaking the command password [verification process 206, paragraph 0101 line 1 to 14].

As per Claim 11, the integrated circuit is further configured to encrypt the voice sensor signal using an algorithm [paragraph 0126].

As per Claim 12, the integrated circuit is configured to recognize the content of the at least one user's speech [paragraph 0132].

As per Claim 13, the recognized content is used to classify the at least one user's speech by keywords [paragraph 0131].

As per Claim 27, further comprising a communication interface unit comprising a portion of the integrated circuit and connected to the voice processing circuit, wherein the interface unit includes a serial interface for communicating information through contacts according to an at least one of an ISO and USB protocol [paragraph 0034].

As per Claim 28, further comprising a battery power source to power the device integrated circuit card [paragraph 0144].

As per Claim 29, further comprising a wireless port configured to receive an electromagnetic signal to power the device integrated circuit card [paragraph 0104, 0115, and 0141-0143].

As per Claim 30, the communication interface unit further includes a wireless port for communicating information to and from the integrated circuit card in contactless applications [paragraph 0104, 0115, and 0141-0143].

As per Claim 34, the action is authenticating the user and wherein authenticating the user includes comparing the characteristics of the voice sensor signal to information stored in the memory indicative of the user speaking a password [paragraph 0117].

As per Claim 43, further comprising, responsive to the comparison between the detected voice characteristics and the stored information, enabling communication between the integrated circuit card and the external data processing system [paragraph 0137-0138].

As per Claim 44, communication between the processing system and the smart card is done via at least one of an ISO port, a USB port, and a wireless port [paragraph 0104, 0115, and 0141-0143].

As per Claim 45, the membrane is micro-machined into the integrated circuit [paragraph 0141-0142.]

As per Claim 46, the membrane has a thickness in the range of 10.0 to 25.0 micrometers [paragraph 0141-0142].

As per Claim 50, the information stored in the memory is indicative of a user speaking a password and the integrated circuit is configured to authenticate a user by comparing the characteristics of the voice sensor signal to the information stored thereby determining whether the user is speaking the password [paragraph 0117].

As per Claim 51, the stored information identifies the user [paragraph 0107].

As per Claim 55, the portable device is an integrated circuit card comprising a plastic frame in which the integrated circuit is embedded [paragraph 0097].

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



Claims 16-26, 39-42, 47-48, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamir et al. (U. S. Publication No.: US 2004/0220807) as applied to claim 1, and 31 above, and further in view of Liebermann et al. (U. S. Patent 5,136,885).

Although the system disclosed by Tamir shows all the features of the claimed limitation, but Tamir does not specifically disclose smart card sensor in piezoelectric transducers.

In an analogous art, Liebermann, on the other hand, discloses a sensor that includes a quartz crystal connected to give a piezoelectric effect upon excitation by an alternating electric field and communicating with the gaseous environment. An oscillator is connected to the quartz crystal for generating the alternating electric field and includes a feedback circuit for providing a signal for self-excitation at the resonant frequency of the crystal as well as indication of vibrational amplitude of the crystal as a function of gas pressure within the gaseous environment. [Liebermann: col.5 line 1 to col.6 line 15].

Therefore, It would have been obvious to one ordinary skilled in the art at the time of invention to combine the teachings of Tamir and Liebermann, because Liebermann's method of quartz crystal generating piezoelectric effect (gauges) upon excitation by electric field would not only promote further structure in the system of Tamir during receiving data from user or devices but will also provide more other options to interface the system[100] by implementing analyzing circuitry with integrated circuit [100] to sense range of pressures vibration and producing the corresponding voltage signals.

As per Claim 16, the pressure sensor includes a membrane that responds to a voice pressure wave [Tamir: transducers 504, paragraph 0141, Liebermann: col.5 line 1 to line 15].

As per Claim 17, the pressure sensor comprises a set of piezoelectric gauges arranged in proximity to the membrane portion and configured to detect resistivity changes induced by the voice pressure waves [i.e. converting vibration into an electrical signal, contact microphone, microphone 112, transducer 504. Liebermann: col.5 line 16 to line 35].

As per Claim 18, the gauges are connected in a Wheatstone bridge configuration [Liebermann: col.5 line 15 to line 35].

As per Claim 19, the pressure sensor comprises a first ring oscillator comprising an odd number of CMOS inverters and configured such that its output frequency increases when the pressure increases [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 20, the pressure sensor comprises a second ring oscillator comprising an odd number of CMOS inverter and configured such that its output frequency decreases when the pressure increases [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 21, the ratio of the first ring oscillator frequency and the second ring oscillator frequency is used to minimize temperature effects and optimize pressure sensitivity [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 22, the pressure sensor comprises a first capacitor and second capacitor [Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 23, the capacitance of the first capacitor varies responsive to voice pressure waves and the capacitance of the second capacitor remains substantially constant responsive to voice pressure waves [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 24, first capacitor and second capacitor are connected in a half bridge configuration and connected to a signal processing unit configured to produce a voltage signal

indicative of the change in capacitance of first capacitor [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 2].

As per Claim 25, further comprising a compound in contact with the active layer wherein the compound transfers voice pressure waves to the sensitivity element of the pressure sensor [Tamir: transducers 504, paragraph 0141, Liebermann: col.5 line 1 to line 35].

As per Claim 26, the compound comprises room temperature vulcanized silicon [Liebermann: col.5 line 1 to line 35].

As per Claim 39, generating the electrical signal comprises using a first electrical parameter that increases with the voice pressure wave and a second electrical parameter that decrease or remains constant with the pressure wave and comparing the first and second parameters to determine the magnitude of the pressure wave [Tamir: paragraph 0141-0142., Liebermann: col.5 line 15 to line 35]..

As per Claim 40, the first and second electrical signals comprise the voltage across first and second piezo resistors respectively [Liebermann: col.5 line 35 to col.6 line 15].

As per Claim 41, the first and second electrical signals are the capacitance of a first capacitor and the capacitance of a second capacitor respectively [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 15].

As per Claim 42, the first and second electrical signals are the frequencies of first and second ring oscillators respectively [Tamir: paragraph 0141-0142, Liebermann: col.5 line 35 to col.6 line 15].

As per Claim 47, the pressure sensor comprising a set of pressure transducer [Tamir: paragraph 0141-0142, Liebermann: col.5 line 15 to line 35].

As per Claim 48, the pressure transducer is a piezoelectric gauge comprising of polysilicon resistors in the vicinity of the membrane [Liebermann: col.5 line 1 to col.6 line 15].

As per Claim 52, the voice sensor comprises a pressure sensor [Liebermann: col.5 line 15 to line 35].

As per Claim 53, generating the electrical signal includes measuring variations in an electrical parameter caused by the voice pressure wave modifying an electrical characteristic of a pressure sensor of the integrated circuit [Liebermann: col.5 line 1 to line 35].

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 54-55 are rejected under 35 U.S.C. 102(e) as being anticipated by Baratelli et al. (U. S. Patent No.: 6,325,285).

3. Regarding Claim 54 Baratelli teach and describe a portable device [100], comprising:

an integrated circuit [100] having a biometric voice sensor integrated [212], into a portion of the integrated circuit, the biometric voice sensor comprising a pressure sensor including a membrane that responds to a voice pressure wave and wherein the voice sensor is configured to detect the speech of a user and to produce a signal responsive to the speech of the user; and a voice processing circuit integrated into a portion of the integrated circuit [114], wherein the biometric voice processing circuit is configured to receive the signal from the biometric voice sensor [212] and to process the signal to extract the voice characteristics representative of the user [verify user identity and authenticate, Fig-2, 3, 5, and col.4 line 13 to line 25, col.9 line 32 to line 60].

As per Claim 55, the portable device is an integrated circuit card comprising a plastic frame in which the integrated circuit is embedded [col.4 line 13 to line 25].

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SYED ZIA whose telephone number is (571)272-3798. The examiner can normally be reached on 9:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

sz

March 8, 2011

/Syed Zia/

Primary Examiner, Art Unit 2431